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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,531	04/19/2005	Pierre Fayet	FRR-16007	4568
40854 7590 07/03/2007 RANKIN, HILL, PORTER & CLARK LLP 4080 ERIE STREET WILLOUGHBY, OH 44094-7836				
			EXAMINER ZERVIGON, RUDY	
			ART UNIT 1763	PAPER NUMBER
			MAIL DATE 07/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,531	Applicant(s) FAYET ET AL.	
	Examiner Rudy Zervigon	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-9 in the reply filed on April 25, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. This application contains claims 10-12 drawn to an invention nonelected with traverse in the reply filed on April 25, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102/103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 5, and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hartig; Klaus et al. (US 4863756 A). Hartig teaches a device (Figure 1; column 4, line 62 - column 5, line 43) for treating a surface (15c; Figure 3) of a substrate (15; Figure 1,3) in a plasma enhanced process, the device (Figure 1; column 4, line 62 - column 5, line 43) comprising: a vacuum chamber (4; Figure 1; column 4, line 62 - column 5, line 43), and arranged in the vacuum chamber (4; Figure 1; column 4, line 62 - column 5, line 43), a magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43), a

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substrate (15; Figure 1,3) support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) and a gas supply lines (18,19; Figure 1; column 4, line 62 - column 5, line 43), wherein the magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43) is of the unbalanced type (see below) and comprises a flat magnetron face (10; Figure 1; column 4, line 62 - column 5, line 43) with peripheral and central magnetic poles ("N", "S"; Figure 1; column 4, line 62 - column 5, line 43) of opposite polarities and an electrode (10; Figure 1) piece being powered by a high frequency alternating voltage (13; Figure 1; column 5; lines 20-26), wherein the substrate (15; Figure 1,3) support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) is electrically grounded or floating or negatively biased and equipped for positioning the substrate (15; Figure 1,3) with a surface (15c; Figure 3) to be treated facing the magnetron face (10; Figure 1) at a distance ("S2"; Figure 3) thereof wherein the gas supply lines (18,19; Figure 1; column 4, line 62 - column 5, line 43) being equipped for supplying a process gas or process gas mixture to the space between the magnetron face (10; Figure 1) and the surface (15c; Figure 3) to be treated of the substrate (15; Figure 1,3) positioned on the substrate (15; Figure 1,3) support, and wherein the distance ("S2"; Figure 3) between the magnetron face (10; Figure 1) and the substrate (15; Figure 1,3) support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) is adapted to the magnetic field created by the magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43) such that there is a visible plasma band running between darker tunnels (11) formed by magnetic field lines extending between peripheral and central magnetic poles ("N", "S"; Figure 1; column 4, line 62 - column 5, line 43) of the magnetron face (10; Figure 1) and the surface (15c; Figure 3) to be treated, the plasma band having a minimum width but having towards the surface (15c; Figure 3) to be treated a homogeneous brightness, as claimed by claim 1. When the

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structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Hartig further teaches:

- i. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 1, wherein the magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43) comprises an electrode element (10; Figure 1) being connected to a source of an alternating voltage (13), as claimed by claim 5
- ii. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 5, wherein the substrate (15; Figure 1,3) support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) and/or the substrate (15; Figure 1,3) are arranged to be electrically grounded, electrically floating or negatively biased (column 5; lines 16-26), as claimed by claim 6

In the event that Hartig's apparatus is not deemed to exhibit the claimed functional properties (i.e. balanced or unbalanced type), it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the position/strength of Hartig's magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43).

Motivation to optimize the position/strength of Hartig's magnetron electrode is for avoiding flaking and peeling of coated articles as taught by Hartig (column 4; lines 6-18; 31-40).

5. Claims 2-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig; Klaus et al. (US 4863756 A). Hartig is discussed above. Hartig does not teach:

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- i. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 1, wherein a distance ("S2"; Figure 3) between the surface (15c; Figure 3) to be treated and the magnetron face (10; Figure 1) is at least 2% larger than a visible height (A-B) of the tunnels (11), as claimed by claim 2
- ii. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 1, wherein a distance ("S2"; Figure 3) between the surface (15c; Figure 3) to be treated and the magnetron face (10; Figure 1) is at most 20% larger than a visible height (A-B) of the tunnels (11), as claimed by claim 3
- iii. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 1, wherein a magnetic strength of the central magnetic pole of the magnetron face (10; Figure 1) is about half of a magnetic strength of the peripheral pole, as claimed by claim 4
- iv. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 1, wherein the substrate (15; Figure 1,3) support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) is a rotating drum (16, 17; Figure 1; column 4, line 62 - column 5, line 43) and wherein a plurality of magnetron electrodes (6; Figure 1; column 4, line 62 - column 5, line 43) having rectangular faces arranged with their length parallel to the rotation axis of the drum (16, 17; Figure 1; column 4, line 62 - column 5, line 43) are arranged around part of a circumference of the drum (16, 17; Figure 1; column 4, line 62 - column 5, line 43), as claimed by claim 7
- v. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 7, wherein the gas supply lines (18,19; Figure 1; column 4, line 62 - column 5, line 43)

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comprises gas supply lines extend parallel to the drum axis between the magnetron faces (6; Figure 1; column 4, line 62 - column 5, line 43)', as claimed by claim 8

- vi. The device (Figure 1; column 4, line 62 - column 5, line 43) according to claim 7, wherein each of the plurality of magnetrons (6; Figure 1; column 4, line 62 - column 5, line 43) is connected to a separate power supply (13), as claimed by claim 9

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the position of and duplicate the number of Hartig's magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43).

Motivation to optimize the position of and duplicate the number of Hartig's magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43) is for avoiding flaking and peeling of coated articles as taught by Hartig (column 4; lines 6-18; 31-40), and for processing substrates of longer length for greater throughput, respectively.

Response to Arguments

6. Applicant's arguments filed April 25, 2007 have been fully considered but they are not persuasive.

7. Applicant states:

“

Hartig does not teach or suggest a substrate support that is “equipped for positioning the substrate with a surface to be treated facing the magnetron face”, as required. Rather, referring to Fig. 2 of Hartig, the substrate 15 includes a surface 15b that is to be treated. This surface 15b is averted from the system of magnets 6 and the conductive part 10a of the electrode 10 (see Col. 5 Lines 59-61 of Hartig). Thus, in Hartig the surface 15b of the substrate 15 to be treated faces

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away from the face of the magnets 6, and this teaches directly away from the claimed invention where a surface to be treated faces the magnetron face.

“

and...

“

Additionally regarding claim 1, Hartig does not teach or suggest gas supply lines that are "equipped for supplying a process gas or process gas mixture to the space between the magnetron face and the surface to be treated on the substrate", as required. Rather, Hartig teaches a gas feeding device 18 that is located above both the substrate 15 and magnets 6 and supplies gas downward onto the surface 15b of the substrate 15 being treated. However, the gas is supplied into a space on the opposite side of the substrate 15 from a space that is defined between the substrate 15 and the magnets 6. By supplying gas only to the opposite side of the substrate, Hartig teaches away from the claimed invention.

“

In response, the Examiner disagrees. Hartig's support (16, 17, 14,8,9; Figure 1; column 4, line 62 - column 5, line 43) is substantially "equipped" for positioning Hartig's substrate (15; Figure 1,3) with a surface (15c; Figure 3) to be treated facing magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43). Spacing "S2", Figure 3 is shown to accomodate process gas as well as showing a surface (15c; Figure 3) to be treated is facing magnetron electrode (6; Figure 1; column 4, line 62 - column 5, line 43).

Applicant further states:

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Additionally regarding claim 1, Hartig does not teach or suggest "a distance between the magnetron face and the substrate support that is adapted to the magnetic field created by the magnetron electrode such that there is a visible plasma band running between darker tunnels formed by magnetic field lines extending between peripheral and central magnetic poles of the magnetron face and the surface to be treated, as required (*italics added*). Rather, Hartig teaches the surface of the substrate (actually the entire substrate) being treated being positioned within the darker tunnels formed by magnetic field lines. Because the substrate is within the darker tunnels, there is no space between the substrate and the darker tunnels. Thus, no plasma band can be located in such a space. Hartig teaches away from the claimed plasma position. In Hartig (Col. 4, lines 15-18) the constricted plasma and chemical reaction zones are on the side of the substrate averted from the electrode.

“

In response, the Examiner believes that Applicant's claimed "a distance between the magnetron face and the substrate support that is adapted to.." appears to be a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02). The Examiner believes Hartig's

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structure is capable of performing the intended use as a result of it's similar apparatus properties and inherent functions.

With respect to Applicant's interpretation of Hartig's magnetic field lines with respect to the capability of Hartig's apparatus properties, it is known that proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright, 193 USPQ 332 (CCPA 1977). MPEP 2125.

Conclusion

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

A handwritten signature in black ink, appearing to read "Parviz Hassanzadeh", with a date "6/20/12" written below it.